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IS 11872-1 and 2 (1987): Rollers for Drawing and Spinning  
Frames in Jute Mill [TXD 14: Machinery for Fabric  
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**IS : 11872 ( Parts 1 and 2 ) - 1987**  
**( Reaffirmed 1992 )**

*Indian Standard*

**SPECIFICATION FOR  
ROLLERS FOR DRAWING AND SPINNING  
FRAMES IN JUTE MILL**

**( First Reprint MAY 1998 )**

**UDC 677.052.948.3/.4**

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**BUREAU OF INDIAN STANDARDS  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002**

**AMENDMENT NO. 1 JULY 1990**  
**TO**  
**IS 11872 (Parts 1 and 2):1987 SPECIFICATION**  
**' FOR ROLLERS FOR DRAWING AND SPINNING**  
**FRAMES IN JUTE MILL**

**PART 2 ROLLERS FOR JUTE SPINNING FRAMES**

(Page 12, Table 1, 'Tolerance on Roller Dia'  
against 'Apron roller of Apron Draft') -  
Substitute

'+0.050'		'+0.000'
	<u>for</u>	
-0.100		-0.075

(TDC 17)

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Reprography Unit, BIS, New Delhi, India

# *Indian Standard*

## SPECIFICATION FOR ROLLERS FOR DRAWING AND SPINNING FRAMES IN JUTE MILL

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( Continued on page 2 )

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( Continued from page 1 )

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***Indian Standard***  
**SPECIFICATION FOR**  
**ROLLERS FOR DRAWING AND SPINNING**  
**FRAMES IN JUTE MILL**

**0. F O R E W O R D**

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 5 January 1987, after the draft finalized by the Jute Mill Accessories and Jute Machinery Spare Parts Sectional Committee had been approved by the Textile Division Council.

**0.2** This standard has been published in the following two parts to provide guidance to the manufacturers so that rollers of acceptable quality are available for use in jute drawing and spinning frames:

**Part 1** Rollers for jute drawing frames

**Part 2** Rollers for jute spinning frames

**0.3** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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\*Rules for rounding off numerical values ( revised ).



## *Indian Standard*

# SPECIFICATION FOR ROLLERS FOR DRAWING AND SPINNING FRAMES IN JUTE MILL

## PART 1 ROLLERS FOR JUTE DRAWING FRAMES

### 1. SCOPE

1.1 This standard ( Part 1 ) prescribes the requirements for rollers for jute drawing frames.

### 2. MANUFACTURING REQUIREMENTS

2.1 **Retaining Rollers** — These shall be manufactured from free cutting steel.

2.2 **Drawing Rollers** — These shall be manufactured from steel conforming to designation 14C14 S14 as per IS : 1570 ( Part 3 ) - 1979\*. Rollers shall be case hardened and minimum hardness shall be 55 HRC with a minimum case depth of 0.75 mm. Rollers shall be provided with 'V' scratches/serrations parallel to the axis all over the body in irregular distribution for better grip.

2.2.1 Hardness shall be determined by the method prescribed in IS : 1586-1968† and case depth shall be determined by method prescribed in IS : 6416-1971‡.

### 2.3 Delivery Rollers

2.3.1 Body of the roller shall be manufactured from mild steel.

2.3.2 Delivery roller boss shall be manufactured from mild steel. It shall be case hardened to 55 HRC ( minimum ) with a minimum case depth of 0.75 mm.

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\*Schedules for wrought steels: Part 3 Carbon and carbon manganese free cutting steels ( *first revision* ).

†Methods for Rockwell hardness test ( B and C scales ) for steel ( *first revision* ).

‡Methods for measuring case depth of steel.

## IS : 11872 ( Part 1 ) - 1987

2.3.3 Hardness shall be determined by the method prescribed in IS : 1586-1968\* and case depth shall be determined by the method prescribed in IS : 6416-1971†.

### 3. OTHER REQUIREMENTS

#### 3.1 Dimensional Requirements

3.1.1 *Nominal* — The nominal dimensions of the rollers shall be as agreed to by the manufacturer and the purchaser or in the absence of any agreement, the nominal dimensions would be as declared by the manufacturer.

3.1.2 *Tolerance* — The dimensions shall be subjected to the tolerances given in Table 1.

TABLE 1 DIMENSIONAL REQUIREMENTS FOR JUTE DRAWING FRAME ROLLERS

SL NO.	TYPE OF ROLLER	TOLERANCE, mm				
		Roller Diameter	Neck Diameter	Staff Length	Width of Neck	Overall Length
i)	Retaining	+ 0.00	+ 0.00	±0.5	±0.5	±3.0
		— 0.10	— 0.01			
ii)	Drawing	± 0.10	+ 0.00	±0.5	±0.5	±3.0
			— 0.05			
iii)	Delivery	+ 0.00	—	—	—	±3.0
		— 0.10				

3.2 *Run-out* — The run-out of the assembled rollers shall not exceed 0.08 mm radial.

3.3 *Straightness* — Straightness of the individual rollers shall be maintained within ±0.05 mm over the full staff length.

#### 4. MARKING

4.1 Each roller shall be legibly marked with the manufacturer's name or trade-mark.

4.1.1 *Certification Marking* — Rollers may also be marked with the Standard Mark.

\*Methods for Rockwell hardness test ( B and C scales ) for steel ( *first revision* ).

†Methods for measuring case depth of steel.

**NOTE** — The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 Rules and Regulations made thereunder. The BIS Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. BIS marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the BIS Certification Mark may be granted to manufacturers or processors, may be obtained from the Bureau of Indian Standards.

## 5. SAMPLING AND CRITERIA FOR CONFORMITY

**5.1 Lot** — In any consignment, all the rollers for drawing frames shall constitute a lot.

**5.2 Samples** shall be tested for each lot for ascertaining the conformity of the material to the requirements of this specification.

**5.3** The number of rollers for drawing frames to be chosen from the lot shall depend upon the size of the lot and shall be in accordance with Table 2.

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**TABLE 2 NUMBER OF ROLLERS FOR DRAWING FRAMES TO BE SELECTED**

LOT SIZE	SAMPLE SIZE	ACCEPTANCE NUMBER	SUB-SAMPLE SIZE	ACCEPTA NUMBER SUB-SAM
(1)	(2)	(3)	(4)	(5)
Up to 50	3	0	1	0
51 to 100	5	0	2	0
101 to 150	8	1	3	0
151 to 300	13	2	5	0
301 and above	20	3	5	0

---

**5.4** The rollers for drawing frames shall be selected from the lot at random and in order to ensure the randomness of selection, the procedure given in IS : 4905-1968\* may be followed.

### 5.5 Number of Test

**5.5.1** Tests for dimensional requirements shall be conducted on the sample selected as given in col 2 of Table 2.

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\*Methods for random sampling.

## **IS : 11872 ( Part 1 ) - 1987**

**5.5.2** Tests for all other requirements given in this specification shall be conducted on sub-sample.

### **5.6 Criteria for Conformity**

**5.6.1** If any roller for drawing frame fails in any of the dimensional requirements given in this standard, it shall be declared as defective. The lot shall be declared as conforming to the requirements of dimensional characteristics if the number of defective rollers for drawing frames is less than or equal to the corresponding acceptance number given in col 3 of Table 2.

**5.6.2** For the other requirements tested on the sub-sample, any roller for drawing frame shall be declared as defective if it fails to meet any of the requirements other than dimensional requirements. The lot shall be declared as conforming to the requirements if the number of defective rollers for drawing frames is less than or equal to the corresponding acceptance number for sub-sample given in col 5 of Table 2.

**5.6.3** The lot shall be declared as conforming to the requirements of this standard, if 5.6.1 and 5.6.2 are satisfied.

## **6. PACKING**

**6.1** Rollers shall be packed in such a way so as to ensure complete protection from rust and bending.

# *Indian Standard*

## SPECIFICATION FOR ROLLERS FOR DRAWING AND SPINNING FRAMES IN JUTE MILLS

### PART 2 ROLLERS FOR JUTE SPINNING FRAMES

#### 1. SCOPE

1.1 This standard ( Part 2 ) prescribes the requirements for rollers for use in jute spinning frames.

1.2 This standard does not lay down details of flutes and knurls.

#### 2. NOMENCLATURE

2.1 For the purpose of this standard, nomenclature of the rollers shall be as indicated in Fig. 1 to 3 read with Table 1.

#### 3. MANUFACTURING REQUIREMENTS

##### 3.1 Material

3.1.1 Shaft of the top roller shall be manufactured from carbon steel conforming to designation 55 C 8 as per IS : 1570 ( Part 2 )-1979\*. Boss shall be manufactured from cast iron conforming to Grade FG 200 as per IS : 210-1978†. It shall be free from surface defects and provided with parallel flutes all over the body for better gripping.

3.1.2 Bottom rollers shall be manufactured from carbon manganese free cutting steel conforming to designation 14C 14 S14 as per IS : 1570 ( Part 3 )-1979‡.

3.1.3 Fluted rollers shall be manufactured from mild steel.

3.1.4 Apron rollers shall be manufactured from steel conforming to designation 55C8 as per IS : 1570 ( Part 2 )-1979\*.

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\*Schedules for wrought steels : Part 2 Carbon steels ( unalloyed steels ) ( *first revision* ).

†Specification for grey iron castings ( *third revision* ).

‡Schedules for wrought steels : Part 3 Carbon and carbon manganese free cutting steels ( *first revision* ).

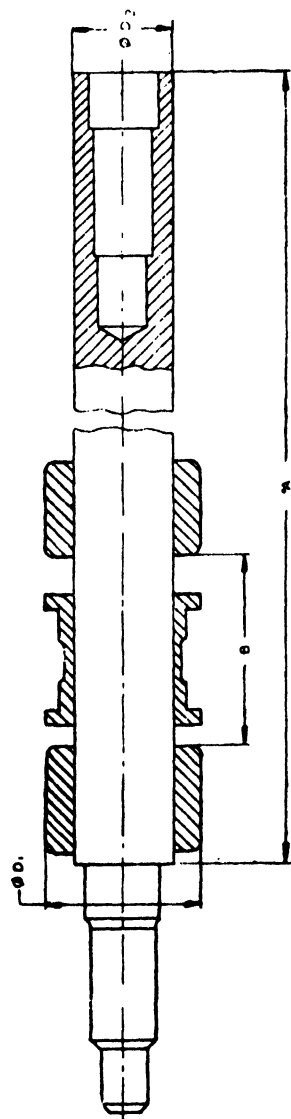


FIG. 1 TOP ROLLER FOR SILVER SPINNING FRAME

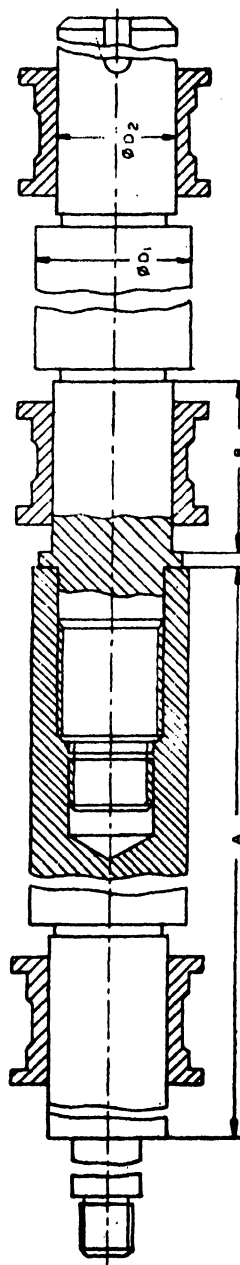


FIG. 2 BOTTOM ROLLER FOR JUTE SILVER SPINNING FRAME

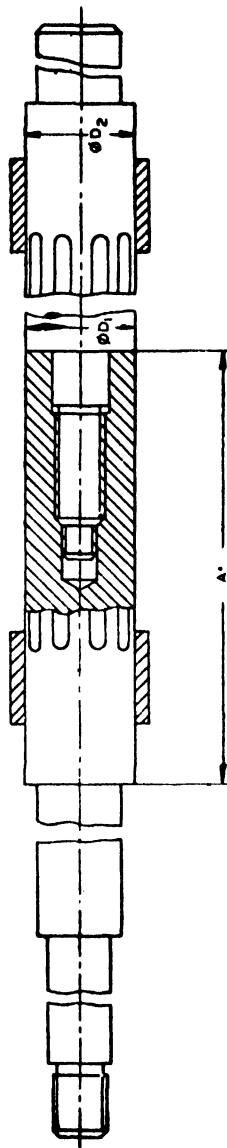


FIG. 3 FLUTED ROLLER FOR JUTE SILVER SPINNING FRAME

### 3.2 Finish

3.2.1 All the bottom rollers shall be case hardened with a minimum hardness of 55 HRC and with minimum case depth of 0.75 mm.

3.2.2 Hardness shall be determined by method prescribed in IS : 1586-1968\* and case depth shall be determined by method prescribed in IS : 6416-1971†.

3.3 In case of fluted rollers, flutes shall not have any burrs or broken edges and in case of knurled rollers, knurls shall be free from sharp edges

## 4. OTHER REQUIREMENTS

### 4.1 Dimensional Requirements

4.1.1 *Nominal* — The nominal dimensions of the rollers shall be as agreed to by the manufacturer and the purchaser or in the absence of any agreement, the nominal dimensions would be as declared by the manufacturer.

4.1.2 *Tolerance* — The dimensions shall be subjected to the tolerances given in Table 1.

**TABLE 1 DIMENSIONAL REQUIREMENTS FOR JUTE SPINNING FRAME ROLLERS**

TYPE OF DRAFT	TYPE OF ROLLER	TOLERANCE ON DIMENSION mm				
		Roller Dia $D_1\phi$	Neck Dia $D_2\phi$	Staff Length $A$	Neck Width $B$	Overall Length
Slip Draft	Top	$\pm 0.15$	$+0.05$ $-0.10$	$\pm 0.50$	$\pm 0.50$	$\pm 6.40$
	Fluted	$\pm 0.13$	$+0.00$ $-0.08$	$\pm 0.50$	$\pm 0.50$	$\pm 6.40$
	Bottom	$\pm 0.08$	$+0.00$ $-0.08$	$\pm 0.50$	$\pm 0.50$	$\pm 6.40$
Apron Draft	Top	$\pm 0.075$	$+0.005$ $-0.003$	$+0.175$ $-0.075$	—	$\pm 3.0$
	Apron	$+0.000$ $-0.075$	$+0.005$ $-0.003$	$+0.025$ $-0.125$	—	$\pm 3.0$
	Bottom	$\pm 0.075$	$+0.005$ $-0.003$	$\pm 0.075$	—	$\pm 3.0$

\*Methods for Rockwell hardness test ( B and C scales ) for steel ( *first revision* ).

†Methods for measuring case depth of steel.



**4.2 Run-out** — The run-out of the rollers shall not exceed 0.08 mm radial when assembled.

**4.3 Straightness** — Straightness of the individual rollers shall be maintained within  $\pm 0.05$  mm over the full staff length.

## 5. MARKING

**5.1** Each roller shall be legibly marked with the manufacturer's name or trade-mark.

**5.1.1 Certification Marking** — Rollers may also be marked with the Standard Mark.

**NOTE** — The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that Standard under a well-defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of the conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers, may be obtained from the Bureau of Indian Standards.

## 6. SAMPLING AND CRITERIA FOR CONFORMITY

**6.1 Lot** — In any consignment, all the rollers for jute spinning frames shall constitute a lot.

**6.2 Samples** shall be tested for each lot for ascertaining the conformity of the material to the requirements of this specification.

**6.3** The number of rollers for jute spinning frames to be chosen from the lot shall depend upon the size of the lot and shall be in accordance with Table 2.

---

**TABLE 2 NUMBER OF ROLLERS FOR JUTE SPINNING FRAMES  
TO BE SELECTED**

LOT SIZE	SAMPLE SIZE	ACCEPTANCE NUMBER	SUB-SAMPLE SIZE	ACCEPTANCE NUMBER FOR SUB-SAMPLE
(1)	(2)	(3)	(4)	(5)
Up to 50	3	0	1	0
51 to 100	5	0	2	0
100 to 150	8	1	3	0
151 to 300	13	2	5	0
301 and above	20	3	5	0

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**6.4** The rollers for jute spinning frames shall be selected from the lot at random and in order to ensure the randomness of selection, the procedure given in IS : 4905-1968\* may be followed.

### **6.5 Number of Tests**

**6.5.1** Tests for dimensional requirements shall be conducted on the sample selected as given in col 2 of Table 2.

**6.5.2** Tests for all other requirements given in this specification shall be conducted on sub-sample.

### **6.6 Criteria for Conformity**

**6.6.1** If any roller for jute spinning frame fails in any of the dimensional requirements given in this standard, it shall be declared as defective. The lot shall be declared as conforming to the requirements of dimensional characteristics if the number of defective rollers for jute spinning frames is less than or equal to the corresponding acceptance number given in col 3 of Table 2.

**6.6.2** For the other requirements tested on the sub-sample, any roller for jute spinning frame shall be declared as defective if it fails to meet any of the requirements other than dimensional requirements. The lot shall be declared as conforming to the requirements if the number of defective rollers for jute spinning frames is less than or equal to the corresponding acceptance number for sub-sample given in col 5 of Table 2.

**6.6.3** The lot shall be declared as conforming to the requirements of this standard, if 6.6.1 and 6.6.2 are satisfied.

## **7. PACKING**

**7.1** Rollers shall be packed in such a way so as to ensure complete protection from rust and bending.

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\*Methods for random sampling.

## BUREAU OF INDIAN STANDARDS

### Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephones: 323 0131, 323 3375, 323 9402

Fax : 91 11 3234062, 91 11 3239399, 91 11 3239382

Telegrams : Manaksanstha  
(Common to all Offices)  
Telephone

### Central Laboratory:

Plot No. 20/9, Site IV, Sahibabad Industrial Area, Sahibabad 201010

8-77 00 32

### Regional Offices:

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002 323 76 17

\*Eastern : 1/14 CIT Scheme VII M, V.I.P. Road, Maniktola, CALCUTTA 700054 337 86 62

Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022 60 38 43

Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600113 235 23 15

†Western : Manakalaya, E9, Behind Marol Telephone Exchange, Andheri (East),  
MUMBAI 400093 832 92 95

### Branch Offices:

'Pushpak', Nurmohamed Shaikh Marg, Khanpur, AHMEDABAD 380001 550 13 48

‡Peenya Industrial Area, 1st Stage, Bangalore-Tumkur Road,  
BANGALORE 560058 839 49 55

Gangotri Complex, 5th Floor, Bhadbhada Road, T.T. Nagar, BHOPAL 462003 55 40 21

Plot No. 62-63, Unit VI, Ganga Nagar, BHUBANESHWAR 751001 40 36 27

Kalaikathir Buildings, 670 Avinashi Road, COIMBATORE 641037 21 01 41

Plot No. 43, Sector 16 A, Mathura Road, FARIDABAD 121001 8-28 88 01

Savitri Complex, 116 G.T. Road, GHAZIABAD 201001 8-71 19 96

53/5 Ward No.29, R.G. Barua Road, 5th By-lane, GUWAHATI 781003 54 11 37

5-8-56C, L.N. Gupta Marg, Nampally Station Road, HYDERABAD 500001 20 10 83

E-52, Chitaranjan Marg, C- Scheme, JAIPUR 302001 37 29 25

117/418 B, Sarvodaya Nagar, KANPUR 208005 21 68 76

Seth Bhawan, 2nd Floor, Behind Leela Cinema, Naval Kishore Road,  
LUCKNOW 226001 23 89 23

NIT Building, Second Floor, Gokulpat Market, NAGPUR 440010 52 51 71

Patliputra Industrial Estate, PATNA 800013 26 23 05

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\*Sales Office is at 5 Chowringhee Approach, P.O. Princep Street,  
CALCUTTA 700072 27 10 85

†Sales Office is at Novelty Chambers, Grant Road, MUMBAI 400007 309 65 28

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